

USPTO Serial No. 09/902,883

Meichun Ruan et al.

Response to Office Action mailed September 8, 2005

Amendment to the Claims:

1. (Currently Amended) An optical switching system for directing the path of optical signals, comprising:

a substrate including a plurality of channels, wherein each channel includes an optical transmission path between an optical input and an optical output, the optical transmission path being enclosed by a wall;

a reflecting structure formed within the wall of the channel as the optical input to the channel, wherein the reflecting structure has a first position parallel to the wall of the channel to form a portion of the enclosure of the optical transmission path, the reflecting structure being cantilevered to rotate outward away from the channel to a second position, ~~the cantilever operation~~ reflecting structure being controlled by an electrical signal to move the reflecting structure to the first position or second position, the reflecting structure being latched in place by a magnetic force upon removal of the electrical signal; and

an optical path providing an optical signal incident to the reflecting structure which when rotated outward away from the channel provides an entrance for optical signal into the channel.

2. (Previously presented) The optical switching system of claim 1, wherein the reflecting structure includes a mirror to reflect the optical signal.

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3. (Previously presented) The optical switching system of claim 2, wherein the cantilever has a magnetically sensitive portion and a reflective portion.

4. (Previously presented) The optical switching system of claim 1, wherein the cantilever switches to the first position and the second position in response to an electromagnetic force.

5-6. (Canceled)

7. (Previously presented) The optical switching system of claim 1, wherein the cantilever switches to the first position and the second position in response to an electrostatic force.

8. (Currently amended) The optical switching system of claim 1, wherein the ~~channel has~~ plurality of channels each have a reflective wall.

9. (Previously presented) The optical switching system of claim 8, wherein the reflective wall comprises one of the group consisting of aluminum, gold, silver and chromium.

10-13. (Canceled)

14. (Currently amended) A method of directing optical signals through an optical switching system, comprising:

forming a plurality of channels through a substrate, wherein each channel includes an optical transmission path between an optical input and an optical output, the optical transmission path being enclosed by a wall;

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forming a reflecting structure within the wall of the channel as the optical input to the channel, wherein the reflecting structure has a first position parallel to the wall of the channel to form a portion of the enclosure of the optical transmission path, the reflecting structure being cantilevered to rotate outward away from the channel to a second position, the ~~cantilever operation~~ reflecting structure being controlled by an electrical signal to move the reflecting structure to the first position or second position, the reflecting structure being latched in place by a magnetic force upon removal of the electrical signal; and

providing an optical signal incident to the reflecting structure which when rotated outward away from the channel provides an entrance for the optical signal into the channel.

15. (Previously presented) The method of claim 14, wherein the plurality of channels each have a reflective wall.

16. (Previously presented) The method of claim 15, wherein the reflective wall comprises one of the group consisting of aluminum, gold, silver and chromium.

17. (Previously presented) The method of claim 14, wherein the cantilever switches to the first position and the second position in response to an electrostatic force.

18. (Previously presented) The method of claim 14, wherein the cantilever switches to the first position and the second position in response to an electromagnetic force.

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19-24. (Canceled)

25. (Currently amended) An optical switching system for directing the path of optical signals, comprising:

a substrate including a plurality of channels, wherein each channel includes an optical transmission path between an optical input and an optical output, the optical transmission path being enclosed by a wall;

a mirror formed within the wall of the channel as the optical input to the channel, wherein the mirror is cantilevered to rotate outward away from the channel, the ~~cantilever operation~~ mirror being controlled by an electrical signal to move the ~~reflecting structure mirror~~ to the a first position or a second position, the mirror being latched in place by a magnetic force upon removal of the electrical signal; and

an optical path providing an optical signal incident to the mirror which when rotated outward away from the channel provides an entrance for the optical signal into the channel.

26. (Previously presented) The optical switching system of claim 25, wherein the cantilever switches to the first position and the second position in response to an electromagnetic force.

27. (Previously presented) The optical switching system of claim 25, wherein the cantilever switches to the first position and the second position in response to an electrostatic force.

28. (Previously presented) The optical switching system of claim 25, wherein the channel has a reflective wall.

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29. (Previously presented) The optical switching system of claim 28, wherein the reflective wall comprises one of the group consisting of aluminum, gold, silver and chromium.

30. (Previously presented) An optical transmission system, comprising:

a substrate including a channel for propagating an optical signal along an optical transmission path enclosed by a wall;  
and

a cantilevered reflecting structure formed within the wall of the channel as the optical input to the channel, wherein the cantilevered reflecting structure rotates outward away from the channel to receive the optical signal.

31. (Currently amended) The optical transmission system of claim 30, wherein the cantilevered reflecting structure is controlled by an electrical signal to move the reflecting structure to ~~the~~ a first position or a second position, the reflecting structure being latched in place by a magnetic force upon removal of the electrical signal.

32. (Currently amended) The optical transmission system of claim 30, wherein the cantilevered reflecting structure switches to ~~the~~ a first position and ~~the~~ a second position in response to an electromagnetic force.

33. (Currently amended) The optical transmission system of claim 30, wherein the cantilevered reflecting structure switches to ~~the~~ a first position and ~~the~~ a second position in response to an electrostatic force.